EMI TEST REPORT

Test report No.:	**EMC- FCC- 0174**
Type of equipment:	**TFT LCD Monitor with Built-in DVD Player**
Model Name:	**DME-OHST104**
FCC ID :	**SCIDMEOHST104**
Applicant:	**SAINTECH CO., LTD**
Factory:	**Pharos Electronics Co**
Test standards:	**FCC part 15 subpart B, Class B** **FCC part 15 subpart C**

Test Procedure and Items :
AC Power Line Conducted Emissions Measurement: ANSI C63.4:2001
Radiated Emissions Measurement : ANSI C63.4:2001

Test result : Complied

The above equipment was tested by EMC compliance Testing Laboratory for compliance with the requirements of FCC Rules and Regulations.
The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Date of test: 2004. 07. 01~02 **Issued date: 2004 . 07. 05**

Tested by : J. S. Kim **Approved by:** M. S. Chung

Kim, Jung-Soo **Chung, Min-Seok**

EMC Compliance Ltd.
82-1, JEIL-RI, YANGJI-MYUN, YONGIN-CITY, KYUNGGI-DO, 449-825 KOREA
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1. Client information

Applicant : SAINTECH CO., LTD
Address : R/N 111,471 Woncheon-Dong, Yeongtong-Gu, Suwon city, Kyunggi-Do,442-824, Korea
Telephone number :+ 82-31-214-2862
Facsimile number : + 82-31-214-2858
Contact Person: Park, Gyu-Hong

Manufacturer : Pharos Electronics Co
Address : 16-16 Top-dong, Kwonsun-gu, Suwon city, Kyounggi-do, Korea
Telephone number:+ 82-31-296-9790
Facsimile number: + 82-31-296-9791

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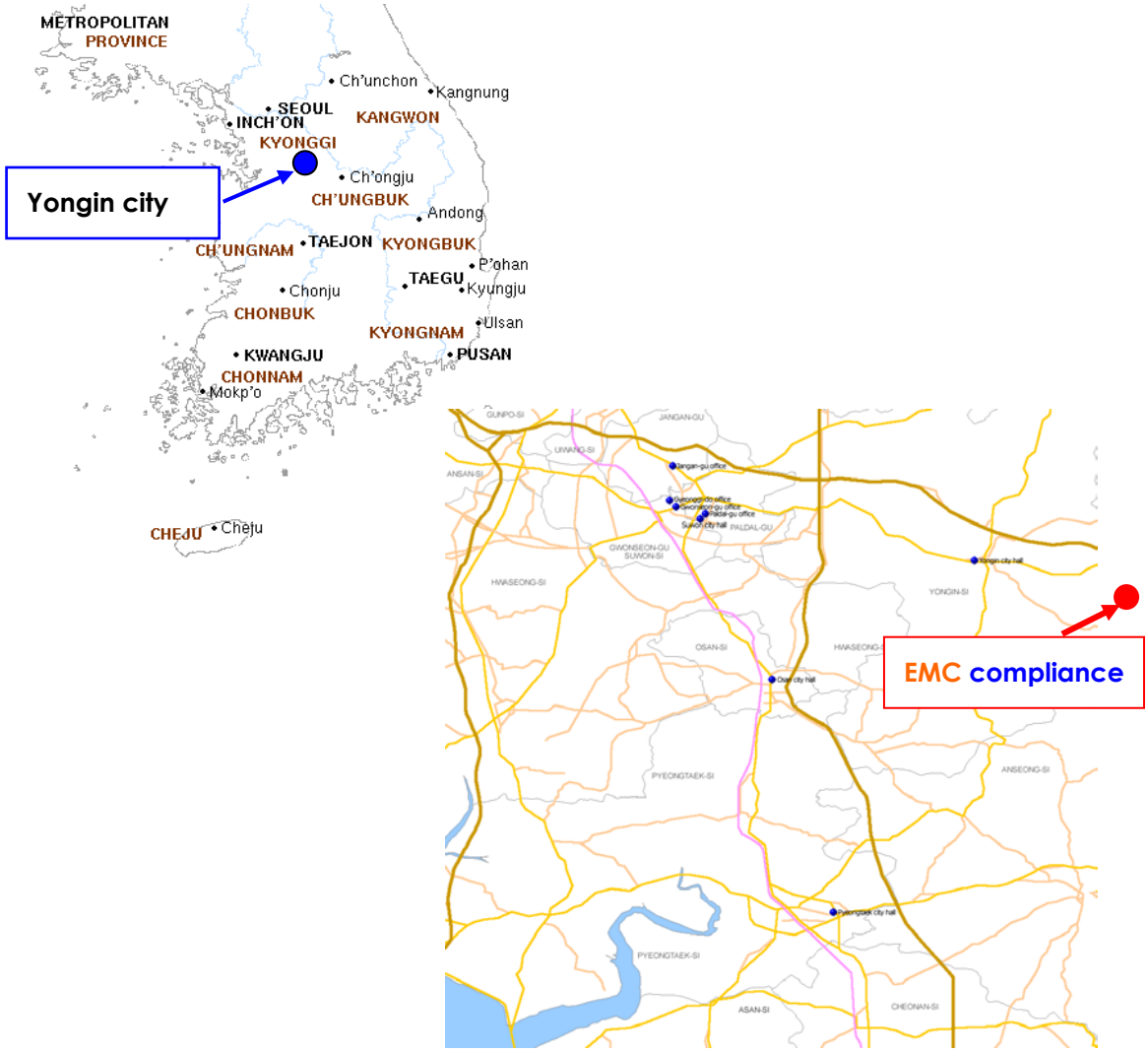
2. Laboratory information

Address

EMC compliance Ltd.
82-1, JEIL-RI, YANGJI-MYUN, YOUNGIN-CITY, KYUNGGI-DO, KOREA
Telephone Number : 82 31 336 9919
Facsimile Number : 82 31 336 4767

FCC Filing No. : 793334
VCCI Registration No. : C-1713, R-1606

SITE MAP



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3. Test system configuration

3.1 Operation Environment

		Temperature	Humidity	Pressure
OATS	:	28 °C	57 %	1007 hPa

Test site

These testing were performed following locations;

OATS (3m) : Radiated emission

3.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMI. The factors contributing to uncertainties are test receiver, Cable Loss, antenna factor calibration, Antenna directivity, antenna factor Variation with height, antenna phase center variation, antenna Frequency interpolation, measurement distance variation, Site imperfection, mismatching, and system repeatability.

Based on NIS 80, 81, the measurement uncertainty level with a 95% confidence level was applied.

3.3 Sample calculation

Radiated emission

The field strength is calculated adding the antenna Factor, cable loss and, Antenna pad adding, subtracting the amplifier gain from the measured reading.

The sample calculation is as follows :

FS = MR + AF + CL + AT -AG

MR = Meter Reading / AF = Antenna Factor / CL = Cable Loss

AP = Antenna Pad / AG=Amplifier Gain /

If MR is 30dB, AF 12dB, CL 5dB, AP 10dB, AG 35dB

The result (MR) is

30 + 12 + 5 + 10 –35 = 22dBuV/m

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4. Description of EUT

4.1 Product description

Applicant:	SAINTECH CO., LTD
Factory:	Pharos Electronics Co
Type of equipment :	TFT LCD Monitor with Built-in DVD Player
Basic Model :	DME-OHST104
Serial No.:	N/A
Power rating :	DC 12-14V

4.2 Peripherals

Description	Model / Part #	Serial number	Manufacture
DC Power Supply	6032A	US38322201	HP
LCD Monitor	CX910MP	N434H4JX31717F	SAMSUNG

4.3 Operating conditions

Operating : 1. DVD play mode
2. MP3 play mode
3. FM transmitter mode

- The system was configured in typical fashion (as a customer would normally use it) for testing.
- The test program used during radiated testing was designed to exercise the various system components in a manner similar to typical use.

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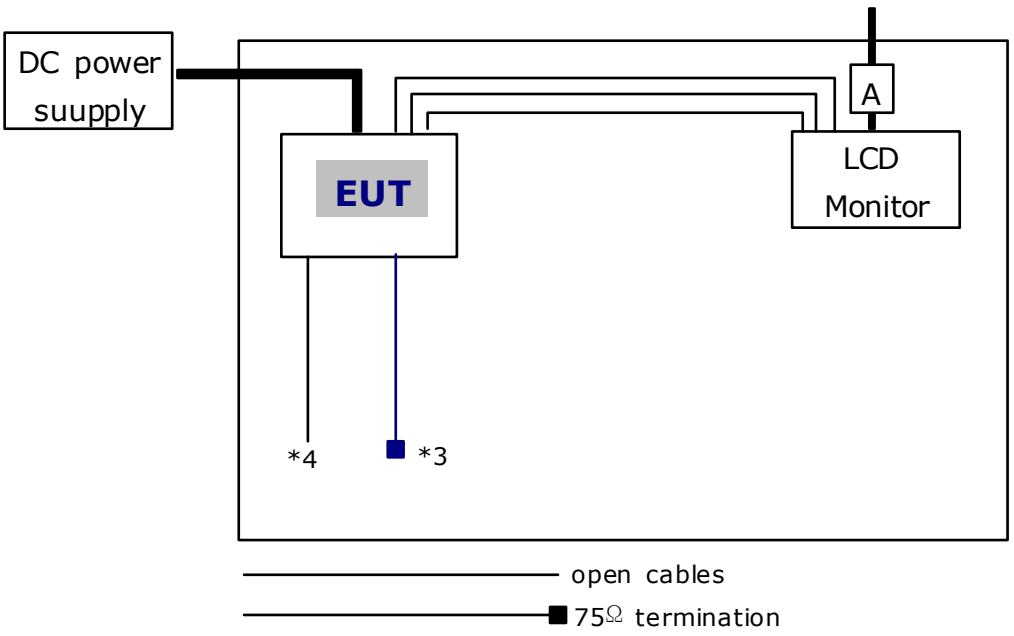
4.4 Used cables

Start		END		Cable Spec.	
Name	**I/O Port**	**Name**	**I/O Port**	**Length**	**Shield (Y/N)**
EUT	TV tuner	75Ω termination	COXIAL	1.5	Y
	Video Out	LCD Monitor	A/V	1.2	Y
	Audio Out (R)	LCD Monitor	A/V	1.2	Y
	Audio Out (L)	LCD Monitor	A/V	1.2	Y
	Video In	75Ω termination	A/V	1.2	Y
	Audio In (R)	Open cable	A/V	1.2	Y
	Audio In (L)	Open cable	A/V	1.2	Y
	Video In	75Ω termination	A/V	1.2	Y
	Audio In (R)	Open cable	A/V	1.2	Y
	Audio In (L)	Open cable	A/V	1.2	Y

4.5 E.U.T. test configuration



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5. Summary of test results

5.1 Modification to the E.U.T.

- None

5.2 Standards & results

FCC Part 15 Subpart B Class B
FCC Part 15 Subpart C
ANSI C63.4 – 2001

Test items	Test methods	Result
Radiated Electric Field emission	ANSI C63.4-2001	Pass
Intentional radiator 200kHz bandwidth	ANSI C63.4-2001	Pass
Intentional radiator field strength of radiation	ANSI C63.4-2001	Pass
Intentional radiator field strength of spurious	ANSI C63.4-2001	Pass

*** Conducted emission test is waived because the manufacturer is not provided AC/DC adaptor.**

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6. Test results

6.1 Radiated emission

6.1.1 Measurement procedure

A pretest was performed at 3m distance in a semi-anechoic chamber for searching correct frequency. The final test was done at a 10m open area test site with a quasi-peak detector. EUT was placed on a non-metallic table height of 0.1m above the reference ground plane. Cables were folded back and forth forming a bundle 0.3m to 0.4m long and were hanged at a 0.4m height to the ground plane. Cables connected to EUT were fixed to cause maximum emission. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

6.1.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next cal. date	Used
Test receiver	ESVS10	827864/006	R&S	05.05.14	☒
TRILOG Broadband Ant.	VULB 9160	3138	SCHWARZBECK	05.04.10	☒
Antenna Mast	A109	N/A	DEAIL	-	☒
Turn Table	TS14	N/A	DEAIL	-	☒
10m OATS	-	-	EMC Compliance	-	☒

6.1.3 Measurement uncertainty

Radiated Emission measurement : (K=2)
30-300 MHz ; 3 m: ±3.56, 10 m: ±3.50
300-1000 MHz ; 3 m: ±4.47, 10 m: ±2.64

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6.1.4 Test data

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	angle	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
					Antenna	Cable			
[DVD play mode]									
86.00	28.6	v	1.2	314	7.62	0.74	40.0	36.96	3.04
166.00	25.1	h	2.5	168	12.87	1.50	43.5	39.47	4.03
200.04	29.8	h	3.0	105	9.35	1.60	43.5	40.75	2.75
216.60	30.6	h	1.6	278	10.06	1.76	46.0	42.42	3.58
270.02	26.8	h	4.0	30	12.29	2.00	46.0	41.09	4.91
406.00	22.1	h	2.2	228	15.56	2.90	46.0	40.56	5.44
500.04	20.7	h	4.0	336	17.04	3.40	46.0	41.14	4.86
796.00	15.2	h	3.5	180	21.99	5.18	46.0	42.37	3.63
994.80	11.5	v	1.0	46	24.94	6.14	54.0	42.58	11.42
[MP3 play mode]									
32.02	1.0	V	1.0	315	11.01	0.54	40.0	12.55	27.45
60.00	24.9	v	1.0	125	11.28	0.60	40.0	36.78	3.22
162.04	24.1	h	1.5	281	13.22	1.50	43.5	38.82	4.68
184.60	28.0	h	2.9	68	11.17	1.52	43.5	40.69	2.81
352.08	25.7	h	2.6	321	13.87	2.52	46.0	42.09	3.91
540.00	19.8	h	3.4	135	18.62	3.60	46.0	42.02	3.98

*3 m OATS

** Note : Reading = Test Receiver meter,*

P= Polarization → POL H = Horizontal, POL V = Vertical

** Result = Field Strength (Antenna factor + Cable factor + Reading)*

6.1.5. Result

Complied

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6.2 Intentional radiator 200kHz Bandwidth

6.2.1 Used equipments

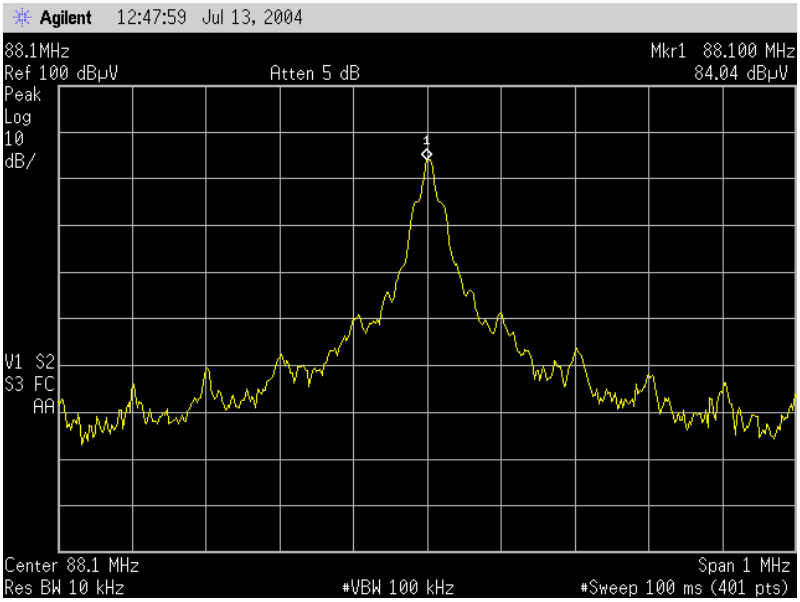
Equipment	Model no.	Serial no.	Makers	Next cal. date	Used
EMC Analyzer	E7401A	US38460066	Agilent	05.04.07	☒

6.2.2 Instrument Settings

RES BW : 10 kHz
VBW : 10 kHz

6.2.3 Test data

[88.1 MHz]



[88.7 MHz]

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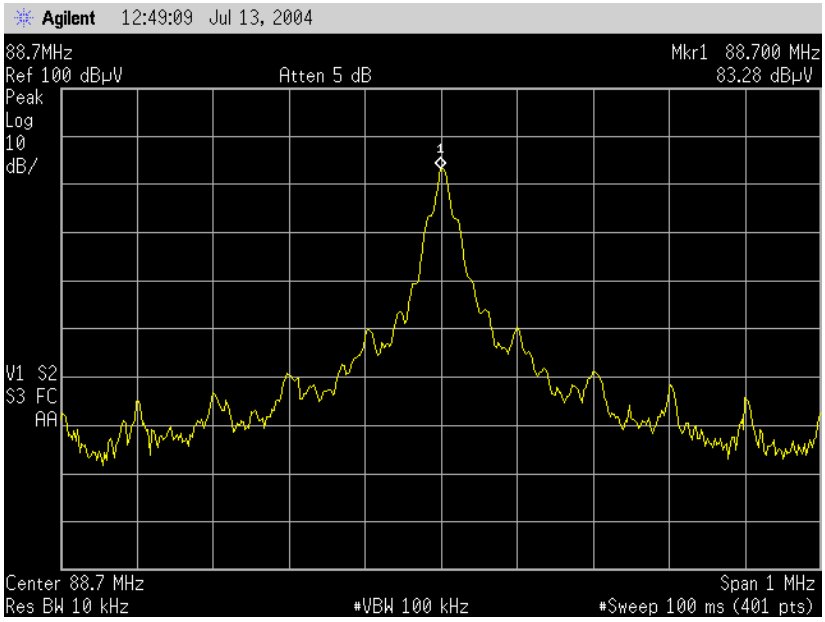
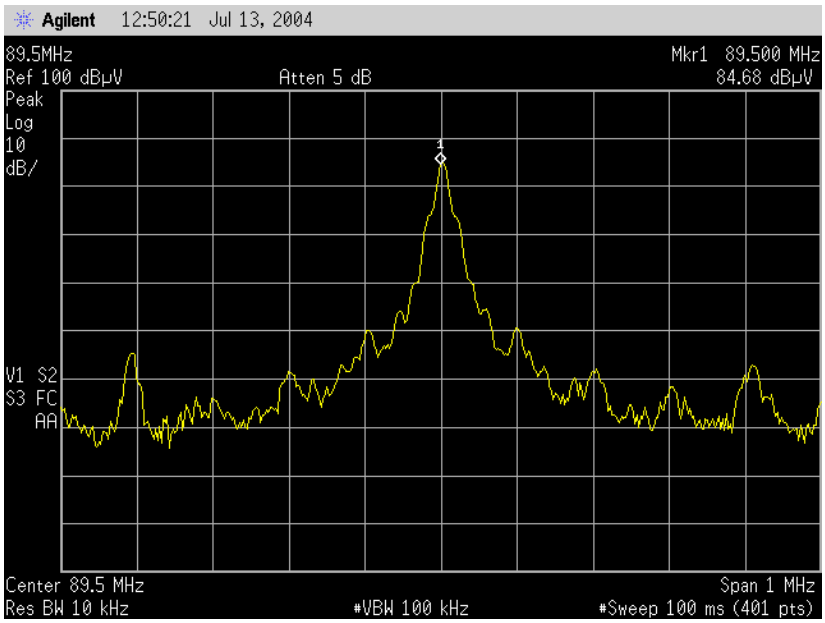


[89.5 MHz]



6.2.4 Result

Complied

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6.3 Intentional radiator Field Strength of Radiation

6.3.1 Measurement procedure

The test was done at a 3m open area test site with an average detector.
EUT was placed on a non-metallic table height of 0.8m above the reference ground plane.
They were folded back and forth forming a bundle 0.3m to 0.4m long and were hanged at a 0.4m height to the ground plane.
Cables connected to EUT were fixed to cause maximum emission.
Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

6.3.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next cal. date	Used
Test receiver	ESVS10	827864/006	R&S	05.05.14	☒
TRILOG Broadband Ant.	VULB 9160	3138	SCHWARZBECK	05.04.10	☒
Antenna Mast	A109	N/A	DEAIL	-	☒
Turn Table	TS14	N/A	DEAIL	-	☒
10m OATS	-	-	EMC Compliance	-	☒

6.3.3 Measurement uncertainty

Radiated Emission measurement : (K=2)
30-300 MHz ; 3 m: ±3.56, 10 m: ±3.50
300-1000 MHz ; 3 m: ±4.47, 10 m: ±2.64

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6.3.4 Test data

[Peak]

Frequency	Reading	Pol.	Height	angle	Correction Factor		Limits	Result	Margin
[MHz]	[dBuV/m]		[m]		Antenna	Cable	[dBuV/m]	[dBuV/m]	[dB]
88.10	37.7	H	3.0	335	7.62	0.82	48.0	46.14	1.86
88.70	36.3	H	2.6	164	7.62	0.82	48.0	44.74	3.26
89.50	36.5	H	2.2	321	7.62	0.86	48.0	44.98	3.02

[Average]

Frequency	Reading	Pol.	Height	angle	Correction Factor		Limits	Result	Margin
[MHz]	[dBuV/m]		[m]		Antenna	Cable	[dBuV/m]	[dBuV/m]	[dB]
88.10	37.5	H	3.0	335	7.62	0.82	48.0	45.94	2.06
88.70	36.0	H	2.6	164	7.62	0.82	48.0	44.44	3.56
89.50	36.2	H	2.2	321	7.62	0.86	48.0	44.68	3.32

* Receiving Antenna Mode : P= Polarization → POL H = Horizontal, POL V =Vertical
* IF Bandwidth : 120kHz
* Note : Reading = Test Receiver meter,
* Result = Field Strength (Antenna factor + Cable factor + Reading)

6.3.5 Result

Complied

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6.4 Intentional radiator Field Strength of Spurious

6.4.1 Measurement procedure

The test was done at a 3m open area test site with a quasi-peak detector.
EUT was placed on a non-metallic table height of 0.8m above the reference ground plane.
They were folded back and forth forming a bundle 0.3m to 0.4m long and were hanged at a 0.4m height to the ground plane.
Cables connected to EUT were fixed to cause maximum emission.
Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

6.4.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next cal. date	Used
Test receiver	ESVS10	827864/006	R&S	05.05.14	☒
TRILOG Broadband Ant.	VULB 9160	3138	SCHWARZBECK	05.04.10	☒
Antenna Mast	A109	N/A	DEAIL	-	☒
Turn Table	TS14	N/A	DEAIL	-	☒
10m OATS	-	-	EMC Compliance	-	☒

6.4.3 Measurement uncertainty

Radiated Emission measurement : (K=2)
30-300 MHz ; 3 m: ±3.56, 10 m: ±3.50
300-1000 MHz ; 3 m: ±4.47, 10 m: ±2.64

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6.4.4 Test data

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	angle	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
					Antenna	Cable			
176.10	26.5	H	1.3	312	11.98	1.50	43.5	39.98	3.52
177.40	27.1	H	1.5	69	11.90	1.50	43.5	40.50	3.00
268.40	24.3	H	2.0	116	12.22	2.00	46.0	38.52	7.48
266.10	23.6	H	1.6	298	12.15	2.00	46.0	37.75	8.25
358.00	21.4	H	1.0	147	14.06	2.58	46.0	38.04	7.96

* Receiving Antenna Mode : P= Polarization → POL H= Horizontal, POL V = Vertical

* IF Bandwidth : 120kHz

* Note : Reading = Test Receiver meter,

* Result = Field Strength (Antenna factor + Cable factor + Reading)

6.4.5 Result

Complied

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